Raising educational standards and preparing children for the "Information Age".

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Preparing today's youth for tomorrow.

The challenge of education today is to provide students with the necessary knowledge for their future work environment and to contribute to the economic vitality of the country. Employers demand better-educated workers - workers armed with computer literacy, problem solving analysis and critical thinking skills in addition to their basic reading, math and writing abilities. These skills cannot be learned overnight. It all must start at an early stage in children's education. In order for the U.S. economy to be competitive in the world market, the education system needs to raise American students' academic level to that of their European and Asian counterparts.

Integrating technology into curricula makes students comfortable and competent users of technology. This confidence is necessary for students to compete successfully in the workplace. Administrators, teachers, students, and even parents have to familiarize themselves with new tools, new terms, and a new way of educating in order to help children and students in their communities reach their full potential. In this maze of technology, it is often difficult to determine how schools should spend their budget, what software is the best, and which approach would be the most useful.

At the same time, teachers and administrators are faced with an ever-growing pressure to keep test scores up in order to get money, promotions and the status that they need for their schools to meet national standards. These requirements for high test scores seem to have taken some educators away from their main goal, which is to educate children and to teach them a wide array of skills so that they can be ready for "the real world" when they complete their education. These demands push the faculty to "teach to the test" rather than to focus on the curriculum. We need to use standardized assessment and technology to meet standards and to improve the quality of teaching, which will in turn raise test scores and standards in America's education system. In this article, we will show you how standardized tests along with the right technology can help teachers to educate children more efficiently while maintaining high test scores.

Standardized testing debate: Evaluating students while keeping up the "quality of learning".

☑ Implementing standards:

So what does testing actually accomplish besides measuring a student's knowledge? The answer is it establishes "Standards". Standards have been stressed in America's education system since the early 80's. Appendix A shows the progress that has been made over the years to implement standards into the American curriculum.

According to McREl's 1997 publication of " A Call to Standards", there appear to be three principle reasons advanced for the development of standards:

- Standards serve to clarify expectations.
- Standards serve to raise expectations.
- Standards provide a common set of expectations.

In February 1997, President Clinton in his State of the Union Address called for every state to implement high national standards and declared " by 1999, every state should test every 4th grader in reading and every 8th grader in math to make sure these standards are met."

A current major concern among school administrators is standardized testing. It has become pervasive in American schools today; a student's promotion from one grade to the next, or graduation, depends on standardized testing. Students have to familiarize themselves with this system at an early stage in their education. Even though standardized tests are often used as a preferred method of assessment and evaluation, opinions vary regarding the use of such tests to decide students' futures. There is broad public support for using such standardized tests as there are qualms surrounding it. Issues like the validity of the test, bias, and quality are often raised.

☑ Re-evaluating the Standardized Testing Procedure

The critics of standardized testing present a strong case. The homogeneous nature of the standardized tests place many students from different culture at a disadvantage. Therefore, these tests do not effectively measure a student's intellect. Evaluation needs should be pre-determined at the beginning of the testing process rather than at its end in order to guarantee results.

Test-driven education fails on many grounds. One-size-fits-all standardized exams assume that every child learns in the same way and at the same time. Fortunately, young people have a variety of minds. Some excel at math, science or languages for example, while others have vocational or artistic talents that the tests fail to measure. Many simply do not perform well on high-pressure exams that focus on memorization. This can result from various external factors from not feeling well on the day of the exam to even stage fright. Minorities whose parents do not speak English well and students with disabilities are at particular risk because the fast paced exams fail to assess their learning accurately.

In reality, teachers often just drill students on how to beat a particular test. Observers report that some students cannot answer questions that do not exactly fit the format of these standardized exams. When education is reduced to test coaching, real learning suffers. Social promotion is also a big factor here such as not promoting students who do not excel academically. It has been reported that in some schools as much as 40% of students who passed did so through social promotion. Teachers feel pressured to pass as many students as possible in order to raise test scores and to allow for grants to come the institution's way. Critics also fear that students are inadvertently taught that intelligence is a measure of the speed at which something is accomplished, or that throughout life everything is as simple as black and white, which is the case in a timed multiple-choice test.

In retrospect, people believe that standardized tests control the curriculum too much instead of vice-versa. When promotions or grants are at stake, many teachers often leave the curriculum aside and focus on the tests. They start concentrating on test-taking skills instead of other subjects. Some schools even have adopted a multiple-choice format in their teaching to better prepare students for tests. In these schools, students' education has become monotonous and is lacking social interaction and interpretive activities.

☑ Using standardized tests to improve the learning process and help individual students with their specific needs.

The supporters of these evaluation methods believe that testing, if done correctly, can help raise educational standards, identify weaker areas that need improvement and use that as a stepping stone to further raise the awareness of the student's intellect.

The defenders of standardized testing claim that it gives teachers a chance to control the curriculum, and to achieve goals set at the beginning of the school year. Analysis of the

grades can also help teachers discover weaker areas in which the student needs improvement. This analysis can be used as a means to remedy the problem by allowing teachers to define what part of the curriculum needs focus for that particular student. These tests control what students need to learn and know for their particular grade. They claim that it is the fairest way of measuring what a student has absorbed throughout the school year and it would be impossible to customize tests to fit the needs of 40 million students in America today.

Standardized Assessment is used to set the standard for students and is the most accurate plausible solution to accommodate the large number of children in America. Therefore, we can say that given the right tools and the proper training, teachers can use standardized testing to help get a better idea of the "Big Picture" in the American education, and it can also be used to personalize the teaching in the classroom level.

☑ Ban or keep standardized tests?

The general consensus of the matter is that promotion or retention should be based on more than just one sole test but rather on a series of activities and tests decided by the students' teacher who, after all, knows them best.

Be this as it may, standardized testing is still used by the majority of schools around America, so it is safe to say many students' futures depend on these tests. Therefore, we have the responsibility to perfect the system and to eliminate as many external factors as possible so that all students can be given a fair chance. Everyone agrees that standardized testing is not the perfect answer to education but it is the most accurate one on a large scale. There is positively no time or resources to interview each student individually and to measure his/her intellect. So the ideal solution would be a combination of the two in which parents and teachers should play a big role. We also have to establish a rationale for testing.

Testing should support and facilitate teaching rather than being the focus of it. Change cannot occur overnight, the process is gradual but it needs to be implemented at all levels in order to assure its success. Today, educators have access to resources and technology that can help implement these changes. Schools need to find the right tools for their problems and use them accordingly to solve them.

Implementing Changes.

☑ Getting everyone involved - stop blaming and start changing.

With such "High Stakes" as promotion or retention on the line during these tests it is to no surprise that parents want their children to do well, teachers want students to do well, and students themselves want to do well. So from the beginning, the pressure is there, on everyone. Teachers feel the responsibility to prepare their students as well as possible on the material of the test and somewhere along the way, some teachers cross the line to just plain teaching to the test. They prepare students for the exact formats of past tests and teach them to follow standard rules. This way of teaching has steered everyone away from the curriculum and not much learning takes place, in turn defeating the whole purpose of education. Teachers need to be careful not to teach to the test but rather to find a way for the test to complement the material in the curriculum. There is a subtle difference between the two.

With so much emphasis on grades and student performance, the public is quick to point their finger at schools and at teachers, holding them accountable and demanding better results.

Steps at all levels are being taken to improve standards. A legislative bill has been passed requiring school districts to report annually on each Title I school and to identify low performers. They would be required to let students at failing schools transfer to other public or charter schools in their area, and they could use federal funds for the transportation. Even President Clinton has welcomed this bill as "an important step toward improving educational opportunities for the nation's most disadvantaged students".

Higher standards and tests have been adopted after this bill in February 1997, but all this is nearly meaningless unless teachers and schools have the appropriate tools to complement the learning process. Grades are still collected in a teacher's grade book and critical student information is not analyzed in a timely fashion. This approach is highly inadequate, especially for today's standards. Students are being tested but they do not know what is being measured. Students and teachers need to know the areas that the students did not perform well in. If they did, teachers would be able to help students with their specific needs, therefore improving the quality of learning by personalizing it and raising test scores.

☑ How should our children be tested?

Another issue often brought up is the actual test itself. What does it mean when a student aces the test? Does it mean that the student actually knows the work or is the student good at memorization? The problem is that some tests do not specifically measure what area the student is good at and what they are not good at. For example it is important to know whether students have good problem solving skills or analytical skills. From the beginning, tests have to be set up so that questions can accurately assess these traits and if the educators who create the tests know what they want to measure, the test becomes all the more effective.

The process of testing is a very gradual one. It begins with preparation on the student's part and with guidance and support from their teachers and parents. After a student's grades are in, it is up to the teacher to check the grade and to determine in which areas the student needs improvement and to make sure that the student receives help in those areas. Parents should then be informed about the situation so they can act accordingly to benefit the student.

☑ How can we make this work?

Researchers Craig Howley of Ohio University and Robert Bickel of West Virginia's Marshall University studied approximately 13,600 urban, suburban, and rural schools in 2,290 districts. Their research found strong evidence that poorer students do better in smaller schools and worse as school populations increase. However, in more affluent communities, the same study found a positive correlation between larger schools and increased academic achievement. In smaller schools, there is a smaller student to teacher ratio, therefore teachers spend more individual time with students and can identify problems at an early stage instead of letting them escalate. In the latter study, larger schools are better equipped with cutting edge technology to complement the learning process such as computer labs and the World Wide Web. As a result, students benefit from broader course offerings and from more individualized teaching through the implementation of technology into the curriculum.

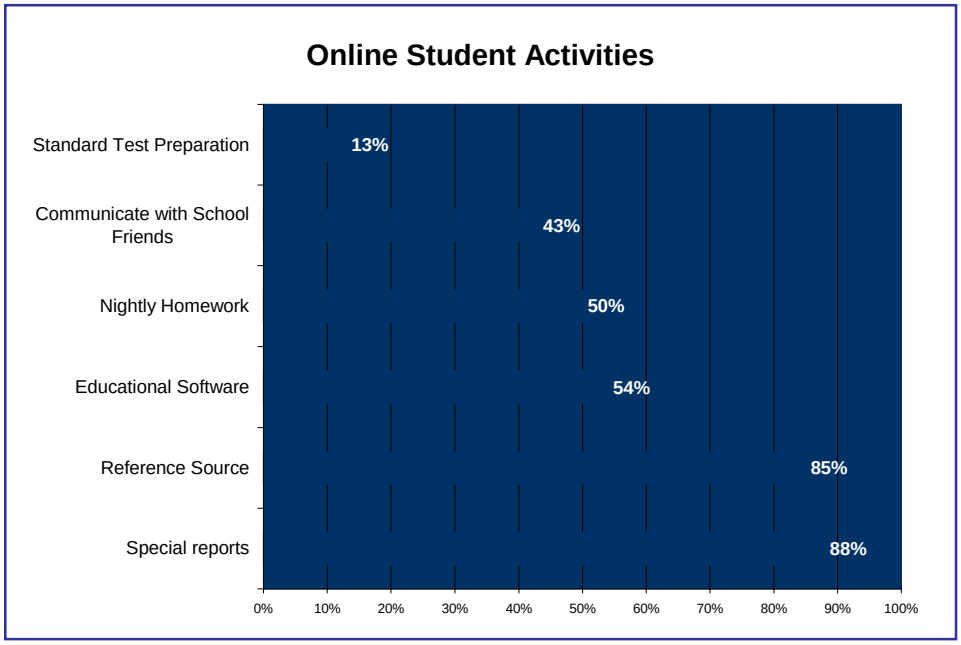
All these factors play major roles in the success of schools today. Ideally there would be a really low student-to-teacher ratio in every class and problems could be identified at an early stage. But it is impossible to sit down with each of the 40 million students in America and analyze each of them separately. Students' grades are affected, as they are not given the proper guidance necessary for them to excel. The next best thing would be incorporating technology into the classroom. Assisting and personalizing the learning process. After all, that is one of the primary reasons for the success of larger schools - more funding for better

equipment. “Technology can improve student performance and provide the competitive skills necessary for future success”, said US Education Secretary Richard Riley “it is critical we provide a link for those in the smallest towns to the largest cities".

Through recent research, electronic testing has proved more effective than the traditional methods of paper and pencil as it gives the students immediate feedback, teachers get tests results in minutes instead of weeks and can therefore control and measure what is being tested. This method enables the teachers to help students with their problems in class right after the test has been taken. This way the information is still fresh in the students' mind and they benefit more from the correction and help that is provided to them.

The percentage of public schools with Internet connections has tripled in just five years, from about one-third to 95 percent, according to a US Department of Education survey. Schools realized that with the Internet doors are opened for students, and they are given the opportunity to explore. As all these investments in education are being made. Within the next few years, there is a good possibility that every classroom in America will be connected to the Internet. All this technology in the classroom will make learning more interactive and even fun again; students can go at their own pace, and even the administrative load is lightened for teachers.

Bringing technology into the classroom



Source: NDP Online Research, 1999

☑ A bigger challenge than it may seem.

It is one thing to have all the cutting edge technology and another thing to actually use it. Which bring us to our next point. Implementing technology in the classrooms to improve the education standards is not as easy a task as it may seem. People's attitudes at all levels might either help or slow down this process. To better understand the situation, we need to recognize the various attitudes people might have towards technology. There are going to be

people that are more amenable to technology than others, because some people are afraid of technology while others embrace it.

Technophobes, Technophiles and Network starvation are three different types of characteristics that affect implementation of technology. They are stressed as follows:

- ***Technophobes*** are people who are afraid of any new technology. One would be surprised how many such people exist today. They try to avoid technology as much as possible and stick to the timeworn traditions they are used to. Fortunately, most people are more open to the latest technology available in the market. After all, you can only boycott computers for so long before realizing how amazingly advantageous they are. However, a second generation of technophobes has emerged, "Nouveau Technophobes". There are some traditional schools that maintain a "technophobic" attitude about change; they do not see much to be gained and prefer to stick to their timeworn study designs These nouveau technophobes are not afraid of computers - they actually quite welcome the idea of it - but it is important to remember that there is a subtle difference between computers in school and computers in education. Nouveau Technophobes use computers for everything but education. They use it as a better typewriter, calculators, and a way for keeping grades and other administrative duties. Which is good in all but does not serve its primary function: Education in school.

- ***Technophiles*** are people that are at the edge of technology, complete opposites of technophobes. They see new technologies as a chance to learn more. Their eyes widen at the chance of tinkering with computers. These people are usually found in technological schools as technology begets technology. In institutions where classes are technologically oriented, people seem to get more used to the whole idea of using technology as a learning tool, which imposes a kind of familiarity with computer use. The technophiles see technology as a mean to deliver high-quality education to students. They believe computers are more effective today and put technology to its fullest use.

- ***Network Starvation*** is another expression used to describe people or institutions' situation versus technology. It is a failure to provide enough technical staff to support the ongoing use and development of an educational network. It can be related not only to networks but also to technology as a whole. It is a serious problem hindering the success of networks in countless institutions, but one that is ignored because the culprit is being understaffed. Often the faculty gets frustrated when not enough technical support is provided, and they end up giving up on the idea of technology.

Did You Know?

- In 1999, public school teachers with more than 32 hours of professional development assigned problem solving exercises using a computer or Internet more than teachers with 0 hours (41% to 14%). (NCES Reference)

- In fall 1999, public elementary school teachers were more likely than secondary school teachers to have their students use computers or the Internet to solve problems (31 versus 20%). (NCES Reference)

- In fall 1999, 66% of public school teachers reported using computers or the Internet for instruction during class time. (NCES Reference)

☑ If it works for some, there is hope for all!

However, some schools have learned to overcome these difficulties. For example, the Martha's Vineyard Middle School has recently installed a computer laboratory and purchased 45 computers to go with it. Students can now go to their library and use computers to browse the Internet, an option not available to them before. The children are given access to them on a daily basis and are given training depending on their grade. Faculty members are also given appropriate training. Faculty has implemented the use of computers and the Internet into the curriculum on a daily basis and found that it instilled a positive learning environment at school. "The children are not strangers to computers, most of them are exposed to computers at home and they are curious to learn more about the machines", commented one of the faculty members. " If anything, it has fueled their appetite to learn". The school is also looking towards electronic testing and maybe even online classes for distance education down the road.

E- Testing And Exam Manager

Today there are many kinds of different products out in the market that complement the learning process. Electronic testing software, online classes, digital video, e-mail and other advanced methods are being developed as we speak. Distance education is also up and coming. A majority of these products make use of the World Wide Web. These technologies are created with the purpose of supporting people's learning through active and enthusiastic engagement in interesting, fun, and interactive tasks. Tools are also being developed making assessment possible by distributing student performance to teachers and parents on a regular basis via the Internet or other media. These solutions provide cutting edge technology that better manages the learning cycle.

Some electronic assessment products only offer an ameliorated temple for teacher to create exams and then administer them on paper. Some provide exams on specific subjects but without giving the possibility to teachers to generate their own exams or to add questions to the existing bank of questions in the software. Another feature that needs to be looked at when evaluating assessment software is its reporting and grading capabilities: does it let the users customized their grades reports? Does it provide itemization of results? Do the students have access to their scores?

Exam Manager™ (www.examanager.com) is a comprehensive, interactive multiple-choice testing software that enables students to study for exams or to take graded quizzes, which can be administered over an institution network, over the Internet or on paper. It was developed and marketed by a Massachusetts' company, Liaison International Inc. (www.liaison-intl.com), which specializes in developing application both client server and web based for the Higher Education community.

Exam Manager™ consists of three different kind of users, the Administrator, Faculty and Student users. Each of these users has access to different functions and securities in Exam Manager™.

- The Administrator is the gatekeeper of Exam Manager™ who creates different faculty and student users and the competency and difficulty levels that can be assigned to questions.
- Faculty users can create their own questions and exams with added pictures, cases or explanations to give students some study guidance. They also have the options of

assigning specific time limits for each exam, limiting the number of times a student is allowed to take an exam and implementing a curve to the students' grades.

- Students users can either take timed graded quizzes or review exams with instantaneous feedback and explanations on answers. The pictures, cases and explanations that come with the questions, allow students to actively interact with the software that stimulates the learning process. They can also randomize exams with different questions from different exams in the database. This way they can study or learn at their own pace.

Students' grades are also kept in a grade log where teachers and students both have access to for analysis purposes. Maybe the most noted feature is that Exam Manager™ can not only be used as an alternative to paper-and-pencil testing but as a review tool where students can practice for exams and use it as an assessment tool. It also gives the versatility of automatically grading exams, which can be further, analyzed into reports, graphs or tables. These reports can integrate various learning standards (from the school or state requirements) as well as the difficulty level of the questions. The Exam Manager™ database resides on any institution's server and also has a student module web application, which allows for easy accessibility. Exam Manager™ is suitable for testing at any level, which makes it a perfect tool to complement any curriculum today.

As important it is to have good teachers and schools, it is just as important to have good tools to sustain and support the growth of high-quality education.

Conclusion

In order for technology to be efficient, we need to maximize its potential. However, we need to realize that technology is not a substitute for personal classroom learning but rather is used to enrich the classroom experience as a whole. This way students have the option of advancing at their own pace and face less pressure of struggling to keep up with the pace of the class. Implementation of Technology in the classrooms depends on a lot of different factors, involving a lot of parties. Teachers, administrators and parents all must play a role in making this change effective. Teachers and administrators must not incorporate technology into the classroom and school just for the sake of it but because they believe that it will give students a chance at high-quality education.

In the same time, it is safe to say that High Stakes Assessment is here to stay, at least for the time being. Therefore testing is still an inaugural part of our education. However, educators must ensure that the right kind of testing is done so that they can accurately assess a student's knowledge and progress. Parents must also play the role of the supporting cast to push children in the right direction to conceive the ways technology can be used to help the children meet our expectations.

Our goal is not to equip everyone with state-of-the-art computers and software but to improve learning with the right king of technology. These tools must be used for the right reasons, which are to raise the quality of teaching and to educate American children by teaching them the skills they will need to compete in the global economy.

Appendix A.

How did current standards get established in the United States?

1983	*A Nation at Risk* is published, calling for reform of the U.S. education system.
1983	Bill Honig, elected state superintendent of California public schools, begins a decade-long revision of the state public school system, developing content standards and curriculum frameworks.
1990	In his State of the Union address, President Bush announces the National Education Goals for the year 2000; shortly thereafter, he and Congress establish a National Education Goals Panel (NEGP).
1990	The Secretary's Commission on Achieving Necessary Skills (SCANS) is appointed by the Secretary of Labor to determine the skills young people need to succeed in the world of work.
1990	The New Standards Project, a joint project of the National Center on Education and the Economy and the Learning Research and Development Center, is formed to create a system of standards for student performance in a number of areas.
1993, Nov:	NEGP's Technical Planning Group issues "Promises to Keep: Creating High Standards for American Students," referred to as the "Malcolm Report." The report calls for the development of a National Education Standards and Improvement Council (NESIC), which would give voluntary national standards a stamp of approval.
1994, March:	President Clinton signs into law Goals 2000: Educate America Act. This legislation creates the National Education Standards and Improvement Council (NESIC) to certify national and state content and performance standards, opportunity-to-learn standards, and state assessments; adds two new goals to the national education goals; brings to nine the number of areas for which students should demonstrate "competency over challenging subject matters." The subject areas now covered include foreign languages, the arts, economics, and civics and government.
1995, Dec:	McREL publishes *Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education*, a synthesis of standards in all subject areas, including behavioral studies and life skills.
1996, March:	The National Education Summit is held. Forty state governors and more than 45 business leaders convene. They support efforts to set clear academic standards in the core subject areas at the state and local levels. Business leaders pledge to consider the existence of state standards when locating facilities.
1997, Feb:	President Clinton, in his State of the Union Address, calls for every state to adopt high national standards, and declares "by 1999, every state should test every 4th grader in reading and every 8th grader in math to make sure these standards are met."

Source: CONTENT KNOWLEDGE The McREL Standards Database Copyright © 1996, 1997 McREL.

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